

**ABSTRACT OF THE INVENTION**

A method and apparatus for the removal of a broken stud from a cylinder head, and rehabilitation thereof, includes a precise alignment block for attachment to at least two intact studs or stud bores of a cylinder head for alignment of a pilot port over the broken stud. Further holes in the block along the length of the block match a stud pattern of a cylinder head of pre-determined stud spacing. The apparatus comprises a series of replaceable steady pilots and corresponding rotary tools in pairs; including an end mill and cooperating milling pilot for flat or concave milling of the end of the broken stud; a drill bit and cooperating drilling pilot for drilling the end of the broken stud; and a tap and cooperating threaded tapping pilot to form new threads in the cylinder head for accepting a new replacement stud. Optionally, a threaded coil insert can be used in the newly prepared stud bore, having outer threads matching the new threads and having inner threads matching a replacement stud.